DOCKET FILE COPY ORIGINAL

ORIGINAL

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 of the Commission's Rules	)	ET Docket No. 98-206
To Permit Operation of NGSO FSS Systems Co-Frequency	)	RM-9147, RM-9245
With GSO and Terrestrial Systems in the Ku-Band	)	
Frequency Range and Amendment of the Commission's	)	
Rules to Authorize Subsidiary Terrestrial Use of the	)	
12.2-12.7 GHz Band by Direct Broadcast Satellite	)	
Licensees and Their Affiliates	)	

To: The Commission

COMMENTS OF LOCKHEED MARTIN CORPORATION

Gerald Musarra
Vice President
Trade and Regulatory Affairs

Lockheed Martin Corporation
Crystal Square 2
Suite 403
1725 Jefferson Davis Highway
Arlington, VA 22202

December 20, 1999

SUMMARY

In these Comments, Lockheed Martin Corporation addresses the conclusions reached at last month's International Telecommunication Union ("ITU") Conference Preparatory Meeting ("CPM") for the 2000 World Radiocommunication Conference ("WRC-2000") on the subject of sharing at Ku-band (i.e., 11/14 GHz) between non-geostationary satellite orbit ("non-GSO") systems in the fixed-satellite service ("FSS") and geostationary orbit systems ("GSO") in the FSS and the broadcasting-satellite service ("BSS"). As a global company with a significant interest in Ku-band GSO satellite systems on both the manufacturer and operator sides, and as an active participant in the ITU and U.S. processes that have worked diligently toward these conclusions for more than two years, Lockheed Martin is pleased to report its support for the compromise package. It devotes these Comments to a detailed discussion of several critical observations, and addresses their ramifications for Commission action in the above-captioned rulemaking proceeding.

The compromise that was reached at the CPM for WRC-2000 on GSO/non-GSO FSS sharing at Ku-band includes a technical package consisting of two sets of downlink power limits that would be validated by the ITU to ensure compliance with the ITU Radio Regulations, and two types of downlink power limits on non-GSO FSS operations that, while included in the ITU Radio Regulations, would not be subject to ITU validation. The obligation to ensure compliance with these latter limits, which are referred to in the CPM Report as "operational limits" and "additional operational limits," would fall principally to individual Administrations that authorize non-GSO FSS systems or allow them to operate within their territory. A set of regulatory provisions implementing these limits (some of which, though deemed essential to the compromise, had yet to be developed in example form by the time the CPM closed) was annexed to Chapter 3 of the CPM Report.

Because the Commission has the responsibility to ensure the implementation of the operational limits and additional operational limits in the United States, and because these limits were

clearly identified in the CPM Report as being essential to the protection that was agreed to be provided to GSO systems, Lockheed Martin believes that the Commission's rules in this proceeding must require each and every applicant for a Ku-band non-GSO FSS system to demonstrate that its system will in fact comply with all applicable ITU validation and operational limits. This requirement should be included in the Commission's rules as an absolute prerequisite to the receipt of any authorization to operate a U.S. non-GSO FSS system or to serve a U.S. earth station from a non-U.S. licensed non-GSO FSS system.

In its description of the Ku-band compromise, the CPM Report expressly recognizes that a number of the regulatory provisions that are required to allow the finalization of the compromise had not been developed as of the end of the CPM, and that these essential provisions would have to be developed by Administrations for input directly to WRC-2000. Until these provisions are developed and the package as a whole is finalized by WRC-2000, the compromise cannot be considered complete. Furthermore, any action the Commission takes on GSO/non-GSO FSS sharing in the period before WRC-2000 must provide an opportunity for updating or even more substantive revision to allow alignment with the results of WRC-2000.

Lockheed Martin also emphasizes that the Ku-band GSO/non-GSO FSS sharing arrangement agreed internationally at CPM does not solve all of the sharing issues facing non-GSO FSS systems either within the ITU or at the Commission. Specifically, the arrangement does not address the critical non-GSO FSS/non-GSO FSS sharing case – something that must be done domestically before any non-GSO FSS system can be authorized by the Commission. The arrangement also does not address how multiple non-GSO FSS systems will ensure that the aggregate limits essential for protection of GSO systems will be met. Finally, WRC-2000 proposals from the United States still need to be developed on a number of important subjects (e.g., off-axis e.i.r.p density, modification of WRC-97 Resolutions 130 and 538, modification of footnotes in the international Table of Frequency

Allocations in Article S5 of the ITU Radio Regulations). Depending on the outcome of WRC-2000, it could prove necessary for the Commission to reflect one or more of these matters in its GSO/non-GSO FSS sharing rules. Again, an opportunity to take account of the results of WRC-2000 is required.

Finally, Lockheed Martin responds to the initial post-CPM comments provided by SkyBridge, LLC and PanAmSat Corporation. Lockheed Martin is particularly concerned that SkyBridge's contribution of outdated French documents to the record, when the CPM Report is a reasonably clear and contemporaneous expression of the protection the U.S. has agreed to accept internationally for its Ku-band GSO networks, may signal an attempt to undo in the Commission's rulemaking proceeding the compromise agreement France and the U.S. secured at the CPM. This would be a most unwelcome development.

Lockheed Martin encourages the Commission to appropriately reflect the compromise arrangements in an initial report and order on GSO/non-GSO FSS sharing issues, and to expeditiously commence proceedings to resolve in a later report and order the work that must be done on the still-unresolved sharing issues that are presented by the proposed non-GSO FSS use of Ku-band spectrum.

TABLE OF CONTENTS

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 of the Commission's Rules	)	ET Docket No. 98-206
To Permit Operation of NGSO FSS Systems Co-Frequency	)	RM-9147, RM-9245
With GSO and Terrestrial Systems in the Ku-Band	)	
Frequency Range and Amendment of the Commission's	)	
Rules to Authorize Subsidiary Terrestrial Use of the	)	
12.2-12.7 GHz Band by Direct Broadcast Satellite	)	
Licensees and Their Affiliates	)	

To: Chief, International Bureau
Chief, Office of Engineering and Technology

COMMENTS OF LOCKHEED MARTIN CORPORATION

Lockheed Martin Corporation ("Lockheed Martin") hereby provides its comments in response to the Commission's December 6, 1999 Public Notice in the above-captioned proceeding.[1] In the *Public Notice*, the Commission requested additional comments pertaining to any issues relevant to the above-captioned proceeding that are identified in Chapter 3 of the Report of the International Telecommunication Union ("ITU") Conference Preparatory Meeting ("CPM") for the 2000 World Radiocommunication Conference ("WRC-2000") on Operational and Regulatory/Procedural Matters to be Considered by WRC-2000 ("CPM Report"). Chapter 3 of the CPM Report contains discussion of issues relating to non-geostationary fixed-satellite service ("non-GSO FSS") systems that would operate on a co-frequency basis with geostationary FSS ("GSO FSS") and geostationary broadcasting

---

[1] *See* Public Notice, DA 99-2733, *FCC seeks comment on NGSO FSS results from the Conference Preparatory Meeting on Technical, Operational and Regulatory/Procedural Matters to be Considered by the 2000 World Radiocommunication Conference* (released December 6, 1999) ("*Public Notice*").

satellite service ("GSO BSS") systems in certain bands between 10 and 30 GHz – including the 11/14 GHz "Ku-band" frequencies that are the subject of the instant proceeding.[2]

I. INTRODUCTION

Lockheed Martin is a global enterprise principally engaged in the research, design, development, manufacture and integration of advanced-technology systems, products and services. The corporation's core businesses are systems integration, space, aeronautics and technology services. Lockheed Martin has a significant interest in Ku-band GSO FSS satellite systems as a manufacturer and a system operator. It has substantial direct and indirect equity interests in GSO FSS systems, including the Lockheed Martin Intersputnik venture and the International Telecommunications Satellite Organization ("INTELSAT"). Lockheed Martin also has a continuing interest in both GSO and non-GSO issues at Ku-band as one of the world's preeminent manufacturers and launchers of satellites.[3] An improperly struck balance between the interests of GSO and non-GSO operators at Ku-band could cause irreparable harm to both sub-industries, and thus have a negative impact on Lockheed Martin.

In furtherance of its interests in all of the sharing issues that are addressed in Chapter 3 of the CPM Report, Lockheed Martin has been an active participant in the U.S. and international processes leading to the finalization of the CPM Report in Geneva last month. With respect to Ka-band GSO FSS/non-GSO FSS sharing issues, Lockheed Martin is generally satisfied with the technical conclusions reported in the text of Chapter 3 of the CPM Report, and believes that an acceptable international sharing regime will have been established when WRC-2000 adopts the

---

[2] Although the Commission's *Public Notice* requested comments on "any relevant issues identified in Chapter 3 of the CPM Report," Lockheed Martin, as explained below, generally limits its comments to the issues pertaining to sharing at Ku-band.

[3] In addition, Lockheed Martin is the founding principal of the "Ka-band" (i.e., 19/29 GHz band) GSO FSS system called Astrolink™, and is also an applicant in its own right for additional GSO FSS and non-GSO FSS authorizations in the second Ka-band FSS processing rounds.

recommendations contained in the CPM Report. Similarly, with respect to non-GSO FSS/GSO sharing in FSS bands outside the 10-30 GHz range, Lockheed Martin supports the CPM's conclusion that insufficient technical work has been done within the ITU to date to enable WRC-2000 to assess whether power limits on an non-GSO FSS operator or some other frequency sharing mechanism could be imposed in bands outside 10-30 GHz. *See* CPM Report at Section 3.2.4. Notwithstanding the fact that these matters are included within Chapter 3 of the CPM Report, Lockheed Martin chooses to limit the comments it makes here to the Ku-band-specific issues that are the focus of the instant proceeding, and looks forward to having the opportunity to elaborate on the above views in other proceedings.

With regard to the Ku-band issues that are the subject of the *Public Notice*, Lockheed Martin provides comments on the compromise recommendation that are intended to place the discussion in the proper context going into WRC-2000 just five short months from now. In addition, Lockheed Martin responds to the comments on the CPM outcome that were separately provided over the last few weeks by SkyBridge LLC ("SkyBridge") and PanAmSat Corporation ("PanAmSat").[4] In this regard, Lockheed Martin encourages the Commission not to lose sight of the fact that the primary obligation of the United States on the Ku-band GSO/non-GSO sharing issue at WRC-2000 is to ensure that the carefully conditioned protection that GSO FSS and BSS systems are to receive under the compromise arrangement will actually be provided under the provisions to be proposed to and adopted by WRC-2000 and, to a significant degree, in the forthcoming Commission rules themselves. Lockheed Martin believes that the Commission should direct its efforts to ensuring the completion of the proposals that implement the compromise package.

---

[4] *See* Comments of SkyBridge (filed December 3, 1999); Comments of PanAmSat (filed December 6, 1999).

II. DISCUSSION

Lockheed Martin emphasizes at the outset that while the international Ku-band compromise package reflected in the CPM Report is indeed a breakthrough development that will, if implemented in full, ensure an acceptable international level of protection for U.S. GSO FSS and GSO BSS systems, it does not solve the entire range of sharing issues presented at Ku-band. The compromise package includes a recommendation for the sharing regimes between non-GSO FSS on the one hand, and GSO FSS, GSO BSS, and terrestrial systems on the other; not included or even fully addressed are critical sharing issues between non-GSO FSS systems, and therefore additional work is needed to ensure that the aggregate interference levels from multiple non-GSO FSS systems do not exceed the overall protection criteria that have been identified for co-frequency GSO systems. Any incorporation of the compromise approach by the Commission into rules to be adopted in the forthcoming First Report and Order in the instant rulemaking proceeding must acknowledge this reality, and reserve for a later stage of the proceeding the technical requirements and associated regulatory provisions that international and domestic study will need to address.

A. Comments On The International Compromise Arrangement

In agreeing to the overall compromise package, as reflected in the CPM Report, the United States accepted: Ku-band validation limits (which would be verified as part of the publication/notification process by the Radiocommunication Bureau); operational limits to protect against synchronization losses in certain earth stations; a set of operational masks for 3 meter and 10 meter GSO FSS earth stations (referred to in the CPM Report as "additional operational limits"); and a second set of validation limits that would be imposed specifically to provide adequate protection to GSO earth stations that are located in the far northern and far southern regions of the world. Lockheed Martin fully supports the compromise arrangement for Ku-band sharing between GSO FSS

and non-GSO FSS systems that is reflected in the text of Chapter 3 of the CPM Report.[5] It is a blueprint for addressing the complicated sharing issues between non-GSO FSS and GSO systems, and strikes an acceptable balance between the legitimate interests of both the GSO and non-GSO sub-industries. Of critical importance to Lockheed Martin is the suggestion that the protection to be provided by this arrangement leaves an acceptable opportunity for evolution of the GSO services.

The CPM provided regulatory examples on the technical protection criteria reflected in the validation and operational limits to be imposed on Ku-band non-GSO FSS systems.[6] In other instances, as an equally critical component of the compromise, the CPM merely recited in the text of the report the requirement that regulatory provisions need to be developed to ensure the enforcement and compliance aspects of the operational and additional operational limits (including the development within the ITU of the associated technical tools and methodologies).[7] In these

---

[5] Lockheed Martin specifically supports the staggered operational power limits for the protection of Ku-band GSO FSS earth station antennas that are reflected in Table S22-4A in Annex 1 to Chapter 3. The tighter limits that are recommended there for the period prior to December 31, 2005 provide current operators of GSO FSS systems with an appropriate transition period for existing systems and will provide sufficient time for the replacement in due course of particularly sensitive equipment. With any luck, everyone will take the day off on December 31, 2005, thereby ensuring that there will be no negative impact from the fact that no operational limits at all are recommended for application in Ku-band on that date.

[6] These examples have, with one exception, been duly converted into draft U.S. proposals for WRC-2000 in the weeks following the CPM. The single exception lies with the power levels that protect 3 meter and 10 meter Ku-band GSO FSS earth station antennas from interference from aggregate interference from non-GSO FSS systems. These levels, which are included in Example WRC-2000 Resolution "WWW" in Annex 2 to Chapter 3 of the CPM Report, were "reverse engineered" from the single-entry validation levels that were agreed for these antenna diameters during the CPM. The disconnect stems from the fact that the single-entry protection is based on validation limits in conjunction with the new additional operational limits mask that is included in note 3 to Table S22-4A in Annex 1 to Chapter 3. See CPM Report at § 3.1.2.4 (c). Thus, because the aggregate protection levels in Table WWW-1A to Resolution WWW in Annex 2 for the 3 meter and 10 meter Ku-band GSO FSS earth station antennas were derived exclusively from the validation limits in Table S22-1A in Annex 1, and not from the validation and operational limits together, the United States has formally recognized that they require review and revision to ensure their consistency with the agreed underlying principle of protection before any U.S. proposal to WRC-2000 on this aspect may be finalized. The same is true for any associated Commission action. The recently concluded XIV Meeting of CITEL's WRC-2000 preparatory group endorsed the need for this review, and expects to finalize action on this point at its XV meeting early next year. Lockheed Martin believes that the aggregate limits in Table WWW-1A to Resolution WWW for the 3 meter and 10 meter Ku-band antennas should be derived, using the appropriate methodology, from the additional operational limits masks that are presented in Table S22-4A, note 3, in Annex 1 to Chapter 3 of the CPM Report.

[7] *See, e.g.,* CPM Report at §§ 3.1.2.4.7, 3.1.2.4.8, and 3.1.6. Provisions that must yet be developed include a requirement that Administrations operating non-GSO FSS systems commit that their systems will meet the additional operational limits; a measure or measures to initiate urgent ITU-R studies to determine the time distribution of the actual power levels radiated by a non-GSO FSS systems into 3 to 10 meter Ku-band GSO FSS antennas, to assess interference

instances, the actual regulatory examples were not developed at the CPM, and were left for Administrations to develop as proposals for WRC-2000.

To the extent that the example regulatory provisions that are annexed to Chapter 3 of the CPM Report have been fully or substantially agreed (e.g., as in Annexes 1 and 2 to Chapter 3), Lockheed Martin supports these provisions and believes that they should properly form the basis for U.S. proposals to WRC-2000.[8] If the example provisions are included in proposals to WRC-2000 from Administrations, they will greatly facilitate the work of WRC-2000 on this very sensitive subject. This is the case even where the example regulations adopted at CPM are fine tuned or modified slightly as they are converted into proposals from Administrations directly to WRC-2000.

Lockheed Martin has several observations on the compromise arrangement and the incomplete set of regulatory examples associated therewith that will help place events in the proper context for the Commission as it moves to complete the first stage of the Ku-band rulemaking proceeding and complete preparations for WRC-2000. The first observation is that much of the protection that non-GSO FSS proponents have now agreed to provide to GSO FSS and GSO BSS networks at Ku-band would be provided through "operational" limits that are exempted from verification by the ITU's Radiocommunication Bureau. This places a heavy burden on individual Administrations to ensure compliance with the agreed non-GSO/GSO sharing regime. Lockheed Martin's second observation stems from the fact that much work needs to be done by the United

---

levels for antenna sizes between 3 and 10 meters, and to permit Administrations to check compliance with the additional operational levels; regulatory procedures to implement both the operational limits and the additional operational limits (i.e., to identify non-GSO systems exceeding the applicable limits and ensure the immediate reduction of the interference level to the limits by any non-GSO system that exceeds them); and a mechanism to permit Administrations to check compliance with the operational levels. *See id.* *See also* CITEL PCC.III Document 1523/99 (Rev.1). These provisions are in addition to other provisions (e.g., the modifications to be made to the Resolutions 130 and 538 (both WRC-97), the enabling resolutions for the sharing scheme) that are required, but that do not form the compromise package.

[8] The Annexes to Chapter 3 contain a number of provisions where unanimous agreement was achieved at the CPM. They also contain, however, a number of instances where multiple options have been identified. *See, e.g.,* Annex 5 to Chapter 3 (which contains varying options for modification of Resolutions 130 and 538 from WRC-97), and Annex 6 (which contains options for modifications to footnotes to Article S5 of the ITU Radio Regulations). In these instances, Lockheed Martin supports the particular options that were advanced by the United States, rather than the Annexes as a whole.

States and other interested Administrations to develop the regulatory provisions identified in the CPM Report as "essential" elements of the compromise package; until all are developed and implemented, the United States must maintain that the compromise reached is not yet complete. Finally, Lockheed Martin observes that the compromise arrangement and the CPM Report itself do not address several of the critical aspects of non-GSO FSS sharing at Ku-band (e.g., non-GSO FSS sharing with non-GSO FSS systems) that must be addressed both domestically and within the ITU before any systems can be authorized to serve the United States. Each of these considerations, and their implications for the instant rulemaking proceeding, are set forth below.

1. The Nature Of The Compromise Arrangements For Ku-Band Non-GSO FSS/GSO Sharing Requires Administrations To Shoulder Most Of The Burden For Ensuring Compliance With The Agreed Protection Regime.

Under the sharing approach for non-GSO FSS and GSO systems that is reflected in the CPM Report, the critical protection to GSO systems would come not from the "validation" limits that would be examined by the ITU and lead to a "favorable" or "unfavorable" finding, but from the operational and additional operational limits that are not contemplated to be subject to ITU verification. As the CPM's newly agreed recommendations for WRC-2000 action specify that any violation of the operational limits by a non-GSO FSS system that is subject to those limits would, without more, be a violation of Radio Regulation No. S22.2 (which prohibits non-GSO systems from causing unacceptable interference to GSO systems), it falls to Administrations planning and operating non-GSO FSS systems at Ku-band to ensure that both sets of operational power limits are to be satisfied by these systems.

As a result of this regime, it will be necessary for individual Administrations to establish effective compliance and enforcement mechanisms.[9] This poses a unique and unprecedented set of

[9] The ITU will, in turn, have the responsibility for developing the tools and technical methodologies for determining which non-GSO FSS systems, if any, are violating the operational limits, as internationally agreed tools and methodologies will greatly facilitate the enforcement by individual Administrations of the power limits regime that is expected to emanate from WRC-2000. *See* CPM Report at § 3.1.2.4.8.

challenges, and dramatically increases the significance of active involvement by individual Administrations in the overall regulatory scheme.

Insofar as the instant proceeding is concerned, Lockheed Martin believes that the Commission must develop rules that require each applicant for a Ku-band non-GSO FSS system to demonstrate, as a prerequisite to the issuance of any authorization, that its system will in fact comply with all applicable ITU limits. In particular, the Commission would require this showing before permitting any Ku-band non-GSO system to access the U.S. market – either as a U.S. licensee or as a non-U.S. licensed system seeking to serve U.S. earth stations.[10] Such a requirement corresponds with the CPM results, as the compromise requires that Administrations planning to operate non-GSO FSS systems at Ku-band must commit that their systems will meet the additional operational limits.[11]

2. The Example Regulatory Provisions Developed By The CPM Do Not Include A Number Of Critical Provisions That Were Identified As Essential Elements Of The Compromise Arrangements; These Provisions Must Be Included In The U.S. Proposals To WRC-2000, And Implemented By WRC-2000, Before The Compromise Can Be Considered Final.

The compromise arrangements reflected in the CPM Report were a welcome but unexpected development at last month's CPM. This fact, combined with the fact that the arrangements themselves include several elements that had not previously been vetted within the responsible ITU working parties and task groups for regulatory and technical consistency, means that certain elements identified in the text of Chapter 3 as essential to the compromise were not reflected in example regulatory provisions in the annexes to the chapter.

---

[10] Again, certain elements of this showing can be subject to the final outcome of WRC-2000.

[11] *See id.* The Commission should require applicants to submit a sworn declaration on their system's compliance with the operational and additional operational limits, accompanied by a supporting analysis, before the Commission would send ApS4 forms containing the certification of compliance forward to the ITU. As a practical matter, however, and in order to ensure that U.S. systems do not lose any advantage based on the timing of coordination and notification materials, the Commission would undertake a substantive evaluation of the materials submitted with the certification only as a prerequisite to licensing. Only those submissions that are patently defective or deficient would be held back at the ApS4 stage.

These "to be developed" elements, which are set forth in footnote 7 above, are just as critical to the compromise "package" as the technical criteria themselves. They must be developed and implemented by WRC-2000 before the understandings reached can be considered to be final. The agreement by Administrations operating GSO FSS systems at Ku-band to accept the validation/operational/additional operational limits approach is necessarily conditioned upon the establishment of a viable means of ensuring that the limits not to be verified by the ITU are not exceeded and are immediately corrected in those hopefully rare instances where exceedances occur.

Even if example regulatory provisions for the essential elements noted above had been included in the CPM Report, the fact remains that the compromise agreement is, at this point, merely a recommendation to the Administrations that will participate in WRC-2000. Because the Conference itself will act only upon proposals from Administrations, the final disposition of the compromise agreement will not be known until the final day of WRC-2000. To date, a relatively few Administrations have been actively involved in all of the Ku-band discussions (principally led by the United States and France) leading to the compromise arrangements. Although a common approach to these issues between Administrations that have been in disagreement with each other since before WRC-97 will go a long way toward securing Final Acts language that reflects the compromise, it is to be expected that other Administrations may comment on what the compromise arrangement means (or should mean) for the protection of their GSO systems. In a nutshell, it is critical for the Commission to bear in mind that the outcome of WRC-2000 is the determinant of the matter, and that WRCs do not always follow expected patterns.

3. Even With The Compromise Arrangements, Additional Work Is Required Within The ITU And In This Proceeding Before Any Non-GSO FSS Systems Can Be Authorized To Provide Ku-Band Services To The United States.

Lockheed Martin's final observation on the compromise arrangements is based more on what they are not than on what they are. The point here is that a number of matters associated with non-

GSO FSS use of the Ku-band remain unresolved, even if the compromise arrangements applicable to non-GSO systems sharing with GSO FSS and BSS systems are fully implemented.

First of all, nothing concrete has been achieved on non-GSO FSS sharing with other non-GSO FSS systems. This is a critical element of the overall picture, and must be resolved domestically before any licensing can occur.[12]

Second, the impact of four or more operating non-GSO FSS systems on co-frequency GSO FSS and BSS systems has not been resolved, and the associated regulatory procedures to address this prospect have not been developed. To be consistent with the CPM's recognition internationally that protection to the GSOs comes a combination of the validation and operational limits (a point which is to be reflected as well in the aggregate limits in Resolution WWW), the Commission should make clear in its rules that any non-GSO FSS system that may be authorized to access the United States market will be required to participate in any regime that is established to ensure that the aggregate interference limits set forth in Resolution WWW (*see* Annex 2 to Chapter 3 to the CPM Report and note 6 above) are not exceeded by multiple systems. It would clearly be unacceptable for an non-GSO FSS system that has co-equal status with other systems in a processing round to secure some form of advantage over those systems by virtue of having an earlier ITU filing date.

Third, proposals to WRC-2000 on a number of issues related to non-GSO FSS use of Ku-band need to be developed and implemented. These proposals, on such subjects as the treatment of off-axis e.i.r.p. density, modifications to the two enabling resolutions from WRC-97 that led to the development of the Ku-band non-GSO/GSO sharing regime (i.e., Resolutions 130 and 538 (both WRC-97), and modifications to pertinent footnotes to the allocation tables in Article S5 of the ITU Radio Regulations, were not the subject of agreements at CPM. These matters, while not listed

[12] It is Lockheed Martin's understanding that informal discussions between the non-GSO FSS applicants for Ku-band authorizations have begun, but that little progress toward a sharing scheme has been made to date.

among the essential unresolved elements of the compromise, must be addressed in U.S. proposals to WRC-2000.

The resolution at WRC-2000 of this last group of issues will necessarily impact the Commission's resolution of the non-GSO/GSO sharing arrangements in the instant proceeding. If regulatory options for modifications to the pertinent footnotes in Article S5 that were favored by the United States are not included in the Final Acts of WRC-2000 (*see, e.g.*, CPM Report at Chapter 3, Annex 6, Option 1A),[13] the Commission will need to reflect these provisions in its final rules. As a result, any action the Commission takes in this proceeding prior to the conclusion of WRC-2000 must leave open the prospect for a supplemental proceeding even as to non-GSO/GSO sharing at Ku-band to address the results of WRC-2000 and incorporate any additional rules that may be required.

* * *

In short, Lockheed Martin supports the compromise arrangements and the sharing scheme for Ku-band that is recommended in Chapter 3 of the CPM Report. It encourages the Commission to appropriately reflect these arrangements in its forthcoming First Report and Order in this docket, and move expeditiously to commence proceedings to resolve in a later report and order the work that still must be done on the outstanding issues.

B. Response To Views Of SkyBridge, L.L.C. And Panamsat Corporation

The previous section of these Comments details Lockheed Maritn's position on the Ku-band compromise arrangements that were negotiated at the CPM, and places those arrangements in their proper context in anticipation of WRC-2000. As a result, it is not necessary for Lockheed Martin to go into great detail in responding to the comments filed separately by SkyBridge and PanAmSat.

---

[13] The modification to ITU Footnote S5.441 that is favored by the United States specifies that "[n]on-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations." *See* CPM Report at 100. The French option for this footnote lacks this critical provision. *Id.* at 101.

Nevertheless, the comments (particularly those of SkyBridge) reflect some interesting biases and have some critical omissions.

With respect to SkyBridge, Lockheed Martin observes that even while it is hailing the CPM compromise arrangements as a "landmark agreement," it is papering the Commission with a highly selective group of documents that are reminiscent of the stark polarity of the past two years. With the exception of the outputs from the various meetings, most if not all of the documents SkyBridge supplied to the Commission are French, rather than U.S., contributions to the various working party and task group meetings that were held in the period leading up to the CPM.[14] The United States contributions to the CPM addressed most of the same subjects as the French/SkyBridge submissions; Lockheed Martin believes that they are certainly as relevant to the derivation of the compromise arrangements and to the instant proceeding.

The CPM Report marks the most contemporaneous statement of the protection that the U.S. has agreed to accept internationally for its Ku-band GSO FSS and GSO BSS networks. All of the material forwarded by SkyBridge (and some of the material included with PanAmSat's recent comments as well) is interesting background, but ultimately has been overtaken by events. In any event, Lockheed Martin has difficulty reconciling SkyBridge's submission of a box full of overtaken documents at this late stage with its proclamation of a "landmark agreement," and hopes that SkyBridge is not attempting to undo at the Commission the agreement between France and the U.S. (the latter being SkyBridge's proposed licensing administration) that was achieved at the CPM.

It is worth reiterating at this juncture that the Commission's obligation is to protect U.S. GSO licensees and planned operations at Ku-band. It can attempt at the same time to minimize the constraints it is required to place on non-GSO FSS systems, but may not do so in a manner inconsistent with its protection obligation. As Lockheed Martin has outlined in the previous section,

---

[14] For example, of the eight input contributions to the CPM meeting that SkyBridge included with its letter, eight are French documents and none are U.S. contributions.

this obligation is to be reflected in the Commission's rules on GSO/non-GSO sharing at Ku-band.[15] The nature of the compromise arrangements, and their consequent placement of the enforcement obligation on Administrations, frees the Commission from sovereignty-based constraints that limit the ability to impose enforcement obligations on the ITU itself.

In its comments, PanAmSat reports on the compromise arrangements, and proceeds to propose a series of principles that it would like to see reflected in the Commission's rules.[16] Lockheed Martin is, for all of the reasons set forth above, receptive to the positions taken by PanAmSat here. PanAmSat seems to understand that the obligations for ensuring compliance with operational limits and the operational masks/additional operational limits will fall to Administrations, and seeks to move toward that end. At this time, however, Lockheed Martin is not prepared to endorse or reject the specific proposals advanced by PanAmSat. Rather, Lockheed Martin believes that the Commission should direct its efforts to ensuring the completion of the proposals that implement the compromise package. As the Commission begins to formulate rules to implement the compromise, it should strive to craft provisions that clearly and unambiguously provide the protection that the CPM has recommended to be appropriate (i.e., to set forth a requirement that confirms the ability of any non-GSO FSS system to meet all applicable validation and operational limits prior to licensing), but does so in a way that is not unnecessarily intrusive or burdensome on non-GSO FSS operations. PanAmSat's proposals should be examined by the Commission and others to determine whether they represent the most effective way of achieving this objective.

---

[15] Overarching this obligation is the fact that an Administration's right to manage appropriately the spectrum within its territory in a non-discriminatory manner is not inconsistent with any commitment it may otherwise have made to open its markets to foreign competition.

[16] *See* PanAmSat Comments at 2-3 and Annex.

III. CONCLUSION

For all of the reasons identified above, Lockheed Martin is supportive of the compromise package agreed at the CPM for sharing between non-GSO FSS and GSO systems in Ku-band frequencies. As the Commission begins the process of reflecting these arrangements in its rules – a process that requires particular attention to be paid to the mechanics of assuring up front that non-GSO FSS systems that are authorized to operate in the United States (either as U.S. licensees or as non-U.S. systems offering service to U.S. earth stations) will indeed comply with all applicable validation and operational limits – Lockheed Martin urges that the Commission duly recognize its responsibility to protect GSO FSS and BSS systems in accordance with the understandings reached, and affirmatively ensure that non-GSO FSS systems will comply with all applicable limits prior to the receipt of any U.S. authorization. The Commission should also act to establish a timetable for the further proceedings (e.g., on non-GSO FSS/non-GSO FSS sharing) that will be required before any licensing can occur.

Lockheed Martin looks forward to continuing its participation in the process of developing U.S. proposals to WRC-2000 to implement the compromise arrangements in full, and to securing a favorable outcome at WRC-2000 itself next May.

Respectfully submitted,

LOCKHEED MARTIN CORPORATION

By: Gerald Musarra

Gerald Musarra
Vice President
Trade and Regulatory Affairs

Lockheed Martin Corporation
Crystal Square 2
Suite 403
1725 Jefferson Davis Highway
Arlington, Virginia 22202
(703) 413-5791

December 20, 1999

CERTIFICATE OF SERVICE

I, Jennifer A. Warren, hereby certify that a true and correct copy of the foregoing "Comments of Lockheed Martin Corporation" this 20th day of December, 1999, served by first class mail, postage prepaid, upon the following:

* Ari Fitzgerald, Legal Advisor
Office of Chairman Kennard
Federal Communications Commission
Room 8-B201N
445 12th Street, SW
Washington, DC 20554

* Mark Schneider, Legal Advisor
Office of Commissioner Ness
Federal Communications Commission
Room 8-B115
445 12th Street, SW
Washington, DC 20554

* Adam Krinsky, Legal Advisor
Office of Commissioner Tristani
445 12th Street, SW
Washington, DC 20554

* Peter Tenhula, Legal Advisor
Office of Commissioner Powell
445 12th Street, SW
Washington, DC 20554

* Kevin J. Martin
Office of Commissioner Furchtgott-Roth
Federal Communications Commissioon
445 12th Street, SW
Washington, DC 20554

* Donald Abelson, Chief
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-B722
Washington, DC 20554

* Linda Haller, Senior Legal Advisor
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-C747
Washington, DC 20554

* Thomas S. Tycz, Chief
International Branch
Satellite and Radiocommunication Div.
Federal Communications Commission
445 12th St., SW
Room 6-A665
Washington, DC 20554

* Cassandra Thomas
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-A666
Washington, DC 20554

* Fern Jarmulnek, Chief
Satellite Policy Branch
Satellite and Radiocommunication Div.
Federal Communications Commission
445 12th St., SW
Room 6-A523
Washington, DC 20554

* Ron Repasi
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-A505
Washington, DC 20554

* Harry Ng
International Bureau
Federal Communications Commission
445 12th St., SW
Room 7-A668
Washington, DC 20554

* Cecily Holiday
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-A760
Washington, DC 20554

* Karl Kensinger
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-A663
Washington, DC 20554

* Damon Ladson
International Bureau
Federal Communications Commission
445 12th St., SW
Room 7-A761
Washington, DC 20554

* Julie Garcia
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-B554
Washington, DC 20554

* Kim Baum
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-B540
Washington, DC 20554

* Alexander Roytblat
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-A623
Washington, DC 20554

* Kathleen Campbell
International Bureau
Federal Communications Commission
445 12th St., SW
Room 6-B418
Washington, DC 20554

Phillip L. Spector
Jeffrey H. Olson
Diane C. Gaylor
Paul Weiss Rifkind Wharton & Garrison
1615 L St., N.W.
Suite 1300
Washington, D.C. 20036

Joseph A. Godles
W. Kenneth Ferree
Mary J. Dent
Goldberg Godles Weinert & Wright
1229 19th St., N.W.
Washington, D.C. 20036

International Transcription Service, Inc.
1231 20th St., NW
Washington, DC 20036

Jennifer Gilsenan
International Bureau
Federal Communications Commission
445 12th Street, SW
Washsington, DC 20554

Jennifer A. Warren